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Institutional Feeding Managers
Stewards-Chefs-Cooks

ATTENTION PLEASE !

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MEAT COOKERY

Until recently, most of the studies on meat cookery have been aimed at getting information for the homemaker. Now through the sponsorship of the National Livestock and Meat Board much more is being learned about large quantity meat cookery.

The shrinkage of meat during cooking not only affects the number of servings of meat obtainable, and, therefore, the cost of the meat as served, but also, its appearance and palatability. The cookery method and the degree of doneness are two of the most important factors affecting shrinkage of meat during cooking and both of these can be controlled in the kitchen.

Meat shrinks during cooking regardless of the method used. There are two kinds of losses:

1. Evaporation or the loss of water and other volatile substances from the surface of the meat as it cooks.

2. Pan drippings, or the lss of fat, water, salts and flavoring substances in the meat which accumulate in the pan as the meat cooks.

The result of all research in meat cookery is summarized in the statement that high temperatures have no place in meat cookery. Low cooking temperatures not only produce more palatable meat, but also more serving.

The old idea that searing meat holds the juices in has been proven erroneous. Although low temperatures are recommended there is a point below which there is no saving in shrinkage, because of the unusually long period of time required to cook the meat. Not only is the loss of weight decreased by low cooking temperature, but the decrease in the slicing surface of the meat is largely prevented. In fact, the higher the temperature, the greater the decrease in slicing surface.

(over)

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Since searing does not hold in the juices, a constant low temperature has several advantages:

1. Shrinks the meat less than most searing methods;
2. Uses less fuel;
3. It is easier to control and to duplicate the results than by the searing method;
4. Less watching is necessary;
5. There is less spattering and burning of fat on ovens, pans and racks.

The degree of doneness to which meat is cooked may influence its shrinkage as much or even more, in some instances, than the temperature at which it is cooked. As the degree of doneness is increased, the shrinkage is increased. Pork is at its best only when it is cooked well done, but even large pork roasts become dry and shrink unduly when over cooked an extra 30 minutes. Beef and lamb are too frequently over cooked. When cooked less done they are juicier and more flavorful and there is more meat to serve. It is important, therefore, in conserving meat to cook it only to the degree of doneness considered most palatable by those being served.

In making these tests a meat thermometer was inserted well into the roasts and away from the bone, and the roasts cooked to identical interior temperature.

Effect of Roasting Temperature on Shrinkage:

Meat	Oven Temperature	Average Weight Before	Average Weight After	Internal Temp Doneness	Shrinkage Lbs.	Shrinkage %
(Cured)	250°F.	14 lbs.	12 lbs.	158°F.	2	14
(Ham)	375°F.	14 lbs.	11 lbs.	158°F.	3	21
Pork Loin	300°F.	33 Lbs.	16½ lbs.	195°F.	16½	50
	350°F.	33 Lbs.	14½ lbs.	195°F.	18½	56
Seared at	500°F.	32½lbs.	13½ lbs.	195°F.	18-5/6	58
Finish at	300°F.					
7 Rib Cut)	250°F.	24¼ lbs.	21-4/5 lbs.	137°F.(Med.)	2-2/5	10
of Beef)	250°F.	23¼ lbs.	19-1/2 lbs.	149°F.(Well)	3-3/4	16
	300°F.	25¼ lbs.	19-1/2 lbs.	149°F.(Well)	5-3/4	23
	350°F.	28 lbs.	20-1/2 lbs.	149°F.(Well)	7-1/2	27
Lamb Legs	250°F.	16-1/3 lbs.	12 lbs.	180°F.	4-1/3	26
	300°F.	16 lbs.	11 lbs.	180°F.	5	31
	300°F.	15-¼ lbs.	10¼ lbs.	180°F.	5	33
Seared at	500°F.	16 lbs.	10-3/4lbs.	180°F.	5-1/4	33
Finish at	300°F.					